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EXAMINER
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GEBREMICHAEL, BRUK A

ART UNIT	PAPER NUMBER
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3715

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11/29/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/582,843	<b>Applicant(s)</b> NAMGUNG, BALENTINO	
	<b>Examiner</b> BRUK A. GEBREMICHAEL	<b>Art Unit</b> 3715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 29-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/18/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The following is a **First Office Action** in response to Applicant's reply filed on 06/04/2010 regarding the election/restriction requirement under 35 U.S.C. 121.

Applicant has elected Group II (claims 29-56) without traverse. Therefore, claims 29-56 are currently pending in this application.

### ***Drawings***

2. The drawings are objected to for failing to comply with 37 CFR 1.84(p)(5) for the following reasons: Reference character "23" (e.g. as currently indicated in FIG 2 and FIG 3) does not appear to be discussed in the specification.

In addition, reference characters "13" and "30" appear to refer to the same element (detecting element) of the claimed device.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended.

Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet **within the range of 50 to 150 words**. It is important that **the abstract not exceed 150 words in length** since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. **It should avoid using phrases** which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- Claims 36 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

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which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 36 recites, “the percussion signal generation means further comprises supporting means of a band shape for supporting the piezoelectric element by surrounding a periphery of the trigger”.

Applicant’s disclosure describes that the percussion signal generation device comprises a *supporting means* of **a band or thimble shape** for supporting the piezoelectric element by surrounding a periphery of the trigger and being tightly attached to the inner surface of the trigger so as not to be detached (e.g. see Page 36, lines 8-12 of Applicant’s disclosure). However, this discussion describes the **shape** of the *supporting means*, but not what the *supporting means* is. The specification appears to be silent regarding any element or material that corresponds to the *supporting means* recited in the above claim.

Note that even if reference numeral **104** in **FIG 23** of the drawings is identified as the *supporting means*, one of ordinary skill in the art would not know what type of elements (or materials) this *supporting means* represent just from the reference numerals labeled in the figure(s).

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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- Claims 29-44, 35 and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 29-44 and 54, independent claims 29 and 54 recites the limitation “the detecting element” in the last line of the claims. However, there is insufficient antecedent basis for this limitation in the claims.

In addition, the term “MILES” as recited in claim 35 appears to be an abbreviation. However, any abbreviation needs to be defined at least once in a claim where it first appears.

6. Claims 29-53 and 55-56 invoke 35 U.S.C. 112, sixth paragraph according to the means plus function requirement, since the following claimed limitations are described in terms of their function, not their mechanical structure.

Claim elements “means for generating a percussion signal” and “means for outputting the generated percussion signal” as recited in claims 29 and 54-56; claim elements “means for receiving the percussion signal”, “means for designating a shooting mode” and “means for supplying the shooting signal” as recited in claims 29, 45 and 54; claim element “means for receiving the shooting signal” as recited in claims 29 and 54; claim element “supporting means of a band shape for supporting the piezoelectric element by surrounding a periphery of the trigger” as recited in claim 36, claim element “skid-proof means located between the supporting means and a trigger protection frame for supporting the supporting means” as recited in claim 37; and claim

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element “means for checking abnormal condition” as recited in claim 53 are means plus function limitations that invoke 35 U.S.C. 112, sixth paragraph.

Accordingly, the limitation “means for generating a percussion signal” appears to correspond to the piezoelectric element described in Applicant’s disclosure (e.g. Page 35, lines 4-9); the limitations “means for outputting the generated percussion signal” and the “means for receiving the percussion signal” appear to correspond to the lead wire and input port respectively as described in Applicant’s disclosure (e.g. see Page 35, lines 9-13); the limitation “means for designating a shooting mode” appears to correspond to the switch described in Applicant’s disclosure (e.g. Page 21, lines 12-16); the limitations “means for supplying the shooting signal” and “means for receiving the shooting signal” appear to correspond to the wire or wireless communication sections described in Applicant’s disclosure (e.g. Page 38, lines 24-25 to Page 39, lines 1-2 and also lines 18-23); the limitation “skid-proof means located between the supporting means and a trigger protection frame for supporting the supporting means” appear to correspond to the leather belt described in Applicant’s disclosure (e.g. see Page 36, lines 12-17); and the limitation “means for checking abnormal condition” appears to correspond to the test circuit described in Applicant’s disclosure (e.g. see Page 43, lines 6-12).

However, regarding the limitation, “supporting means of a band shape for supporting the piezoelectric element by surrounding a periphery of the trigger”, the written description fails to clearly link or associate the disclosed structure, material, or

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acts to the claimed function such that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it clearly links or associates the corresponding structure, material, or acts to the claimed function without introducing any new matter (35 U.S.C. 132(a)); or

(c) State on the record where the corresponding structure, material, or acts are set forth in the written description of the specification that perform the claimed function.

For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claims 29, 31-34, 38-40, and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046 in view of Dawson 4,416,631.

Regarding claim 29, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001) comprising percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal (Para.0045), a housing of



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a magazine, an upper tip of which is inserted and fixed into a magazine insertion section of the gun (FIG 2C, label 26), a laser light transmitter attached to the gun for shooting a laser light toward a target, wherein the housing includes percussion signal input means for receiving the percussion signal outputted from the percussion signal output means (FIG 2B, label 31 and Para.0198), a microcomputer for generating a responsive shooting signal after receiving the percussion signal from the percussion signal input means, (Para.0154 and Para.0157-Para.0162), and shooting signal output means for supplying the shooting signal generated from the microcomputer to the laser light transmitter (Para.0269), the laser light transmitter having shooting signal input means for receiving the shooting signal outputted from the shooting signal output means and shooting a laser light based on the inputted shooting signal (Para.0265 and Para.0268), whereby a simulation is performed as if the target has been hit when the shot laser light is incident to the detecting element mounted on the target (Para.0302 and Para.0304).

Bartsch does not explicitly disclose, shooting mode designation means for designating a shooting mode of the laser light transmitter.

However, Dawson discloses a small arms firing simulator that teaches, shooting mode designation means for designating a shooting mode (FIG 3a, label 208).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson by incorporating a multi-mode selector switch(s) on the magazine in order to allow the trainee to choose any required operating position (such as "Semi" or "Auto") so that the

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trainee would be able to practice different types of shooting operation using the simulator; thereby making the system more adaptive for a variety of training activities.

Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further discloses,

Regarding claim 31, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further discloses, the percussion signal generation means includes a switching element attached to a rear surface of the trigger for generating a percussion signal by being pushed due to a force of pulling the trigger (Para.0184),

Regarding claim 32, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further implicitly discloses, the percussion signal output means supplies the percussion signal to the percussion signal input means in either one of the wired or wireless manner (Para.0154, lines 5-12).

Note that with regard to claim 32, according to Applicant's specification, the *percussion signal output means* corresponds to the connecting *lead wire* that transmits signal from the trigger to the *input port* of the magazine; and the *input port* of the magazine is the *percussion signal input means* recited in the above claim (e.g. see Page 35, lines 9-13).

The reference also describes that Bartsch's simulator system comprises a port that includes a magazine sensor for connecting the magazine to the simulated firearm (FIG 2C, labels 26 and 27), and a trigger sensor that detects movement or actuation of

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the trigger (Para.0045). The reference further describes that the trigger sensor is coupled to a processor which is in turn coupled to the magazine sensor (Para.0154, lines 5-12).

Therefore, one of ordinary skill in the art (at the time of the invention was made) would readily recognize the fact from the teaching of the reference that Bartsch's simulation system incorporates *percussion signal output means* that communicates the output signal from trigger sensor to the processor, and a *percussion signal input means* that receives and communicates the signal from the processor to the magazine, in order to activate the magazine and generate a laser signal that simulates the firing of a shot. Thus, the above claimed features are implicitly taught by Bartsch.

Regarding claim 33, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Dawson further teaches, the shooting mode controls the number of shooting of the laser light to correspond at least to any one of automatic, semi-automatic or locked mode of the gun with respect to a single percussion signal (col.2, lines 31-39).

Therefore, as already discussed above with respect to claim 29 above, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson by incorporating a multi-mode selector switch(s) on the magazine in order to allow the trainee to choose any required operating position (such as "Semi" or "Auto") so that the trainee would be able to practice different types of shooting operation using the simulator; thereby making the system more adaptive for a variety of training activities.

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Regarding claim 34, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further discloses, the shooting signal output means supplies the shooting signal to the shooting signal input means in either one of wired or wireless manner (Para.0269).

Regarding claims 38 and 39, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further implicitly discloses, the housing further comprises a speaker for generating a necessary sound through control by the microcomputer; the sound includes at least more than one of a simulated shooting sound of the gun, a control command, or a report notifying abnormal operation of the simulation system (Para.0236).

Regarding claims 40 and 42, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Dawson further implicitly teaches, the housing further comprises a flash generator for simulating a shooting flash of the gun (col.1, lines 38-46); the housing further comprises an impact generator for simulating a shooting impact of the gun (see FIG 4, label 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson by incorporating a suitable amount of pyrotechnic charge that would be ignited by electrical ignition, in order to simulate the flash and sound that would be generated when an

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actual shotgun is fired, so that the trainee would have a more realistic training experience.

Regarding claim 43, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Dawson further implicitly teaches, the impact generator is at least either one of a piezoelectric element or a compressed gas discharger that can be vibrated by the electric signal (col.4, lines 38-52 and col.5, lines 1-13).

Therefore, as already indicated above, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson by incorporating a suitable amount of pyrotechnic charge that would be ignited by electrical ignition, in order to simulate the flash and sound that would be generated when an actual shotgun is fired, so that the trainee would have a more realistic training experience.

Regarding claim 54, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001) comprising percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal (Para.0045), a housing of a magazine inserted and fixed into a magazine insertion section of the gun to have any one shape of a magazine, a cartridge or a bomb shell (FIG 2C, label 26), a laser light transmitter attached to the gun for shooting a laser light toward a target (see FIG 2B, label 31), the housing including percussion signal input means for receiving the percussion signal outputted from the percussion signal output means (see Para.0154,

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lines 5-12), a microcomputer for generating a responsive shooting signal after receiving the percussion signal from the percussion signal input means (Para.0154 and Para.0157-Para.0162), and shooting signal output means for supplying the shooting signal generated from the microcomputer to the laser light transmitter (Para.0269), the laser light transmitter having shooting signal input means for receiving the shooting signal outputted from the shooting signal output means and shooting a laser light based on the inputted shooting signal (Para.0265 and Para.0268), whereby a simulation is performed as if the target has been hit when the shot laser light is incident to the detecting element mounted on the target (Para.0302 and Para.304).

Bartsch does not explicitly disclose, shooting mode designation means for designating a shooting mode of the laser light transmitter.

However, Dawson discloses a small arms firing simulator that teaches, shooting mode designation means for designating a shooting mode (FIG 3a, label 208).

Therefore, as already indicated with respect to acclaim 1 above, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson by incorporating a multi-mode selector switch(s) on the magazine in order to allow the trainee to choose any required operating position (such as "Semi" or "Auto") so that the trainee would be able to practice different types of shooting operation using the simulator; thereby making the system more adaptive for a variety of training activities.

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- Claims 30, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046 in view of Dawson 4,416,631 and further in view of Trabut 6,257,893.

Regarding claim 30, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch in view of Dawson does not explicitly teach, the percussion signal generation means includes a piezoelectric element attached to a front surface of the trigger for generating a percussion signal by changing the shape thereof due to a force of pulling the trigger.

However, Trabut discloses a method and device for training the tactile perception of a marksman that teaches, a percussion signal generation means includes a piezoelectric element attached to a front surface of the trigger for generating a percussion signal by changing the shape thereof due to a force of pulling the trigger (FIG 3, label 38).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson and further in view of Trabut by incorporating a piezoelectric pressure sensor on the trigger of the simulating gun, in order to effectively detect the trainee's finger when pulling the trigger so that the system would send the appropriate signal to activate the leaser module only when the trigger is pulled with sufficient force; thereby avoiding any error signal that may inadvertently activate the laser module.

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Regarding claim 36, Bartsch in view of Dawson and further in view of Trabut teaches the claimed limitations as discussed above.

Trabut further teaches, the percussion signal generation means further comprises supporting means of a band shape for supporting the piezoelectric element by surrounding a periphery of the trigger (col.4, lines 5-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson and further in view of Trabut by including a housing unit such as a plastic material to hold the pressure sensor together with the trigger (FIG 3, labels 38 and trigger not labeled) so that the pressure sensor would always be attached to the trigger during operation; thereby preventing functional error due to missing sensor.

Regarding claim 37, Bartsch in view of Dawson and further in view of Trabut teaches the claimed limitations as discussed above.

Even if Bartsch in view of Dawson and further in view of Trabut does not explicitly teach, *“the percussion signal generation means further comprises skid-proof means located between the supporting means and a trigger protection frame for supporting the supporting means so as not to skid from the trigger”*, one of ordinary skill in the art would readily recognize the fact from the teaching of the combined references that the plastic material incorporated in Trabut’s system is utilized to hold the piezoelectric pressure sensor to the surface of the trigger so that the pressure sensor would remain intact at all times.



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Furthermore, it is an old and well-known practice (at the time of Applicant's invention was made) to implement any type of fastening method (such as gluing or tying) in order to securely attach one element against another, as this requires only a routine skill in the art. Therefore, this does not distinguish the current invention from the prior art.

- Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046 in view of Dawson 4,416,631 and further in view of Gallagher 4,624,641.

Regarding claim 35, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further discloses, the laser light is a consecutive pulsar wave (Para.0272).

Bartsch does not explicitly disclose, the laser light complying with the MILES code rules.

However, Gallagher discloses a laser simulator for a firing port weapon that teaches, the laser light complying with the MILES code rules (see col.4, lines 50-55 and col.6, lines 30-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson and further in view of Gallagher by incorporating a conventional electronic circuit that is used in standard MILES laser transmitter simulators, in order to generate laser pulses of appropriate wave wavelengths so that the system would be safe and reliable to perform any type of training.

Note that the above claimed feature is further suggested by Dawson (e.g. col.2, lines 6-15 and col.4, lines 13-20).

- Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046 in view of Dawson 4,416,631 and further in view of Nadel 2005/0016514.

Regarding claim 41, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch in view of Dawson does not explicitly teach, the flash generator includes a luminous element mounted on an external front surface of the housing.

However, Nadel discloses a projectile launching simulating device that teaches, a flash generator that includes a luminous element mounted on the simulation gun (FIG 4, label 12)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson and further in view of Nadel by incorporating a light flash generator coupled with a transparent flash light tube into the system, in order to produce a bright light that resembles the spark produced during an explosion of an actual gunshot, so that the trainee would have a more realistic experience when using the modified system; thereby making the modified simulator more attractive to the user.

Regarding claim 41, the criticality of the luminous element claimed, according to Applicant's disclosure, is to simulate the flash that is generated from the muzzle of a gun when shooting a real bullet (e.g. Page 41, lines 24-25 and Page 42, lines 1-3 of Applicant's specification).

The prior art also describes that the transparent flash light tube (along with the flash light generator) is utilized to simulate the explosion of a gun shot (e.g. Nadel, Para.0029 and Para.0030).

Thus, even if the position of the luminous element with respect to the gun appears to be different in the case of Nadel's system (when compared to the position of the luminous element in the case of the current invention), the functional limitations of these luminous elements appear to be identical in both inventions.

Furthermore, Applicant has not disclosed any importance as to why the position of the luminous element with respect to the gun (i.e. positioning the luminous element on the magazine instead of any other parts of the gun) is critical to the current invention (or solves any stated problem); and therefore, the system of the prior art appears to work well for the intended purpose.

Moreover, such rearrangement or repositioning of a part does not patentably distinguish one invention from another. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art **except** with regard to **the position of the starting switch** were held unpatentable because **shifting the position** of the starting switch **would not have modified the operation of the device.**); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

- Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046 in view of Dawson 4,416,631 and further in view of Chung 7,291,014.

Regarding claim 44, Bartsch in view of Dawson teaches the claimed limitations as discussed above.

Bartsch in view of Dawson does not explicitly teach, the housing further comprises a wireless communication module for performing wireless communication.

However, Chung discloses a wireless data communication link in simulated weapon systems that teaches, a housing further comprises a wireless communication module for performing wireless communication (col.3, lines 2-16 and col.4, lines 46-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson and further in view of Chung by incorporating a wireless module into the system that facilitates communication between the different parts of the simulator, in order to minimize the weight and size of the shooting circuitry due to the complexity of the wiring so that operational error due to wiring error would be greatly reduced.

- Claims 45, 48, and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046.

Regarding claim 45, Dawson discloses the following claimed limitations: a simulated magazine of a magazine shape used in a gun simulation system (see FIG 1, 3a), including an upper tip inserted and fixed into a magazine insertion section of a gun (FIG 3a, label 211), the simulated magazine comprising percussion signal input means for receiving a percussion signal generated by pulling of a trigger of the gun (col.2, lines 40-49), shooting mode designation means for designating a shooting mode of the laser light transmitter (FIG 3a, label 208), a

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microcomputer for generating a responsive shooting signal upon recognition of a shooting mode designated by the shooting mode designation means after receiving the percussion signal from the percussion signal input means (FIG 3b, label "CONTROL CIRCUIT"); and shooting signal output means for supplying the shooting signal generated from the microcomputer.

Dawson does not explicitly disclose, a laser light transmitter attached to a gun barrel for shooting a laser light by pulling a trigger of a gun and simulating a hit of a target bearing a detecting element.

However, Bartsch discloses a target shooting system that teaches, a laser light transmitter attached to a gun barrel for shooting a laser light by pulling a trigger of a gun (Para.0265) and simulating a hit of a target bearing a detecting element (Para.302 and Para.304).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch by incorporating a laser light emitting module and a target comprising a detector device into the system, in order to allow the user to practice target shooting using laser light (instead of unsafe projectiles such as bullet); and also to record the hit or miss locations with respect to the designated target so that the user would know the type of practice he/she needs to improve his/her score; thereby making the simulation system more challenging and appealing to different users.

Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson further discloses:

Regarding claim 48, a flash generator for simulating a shooting flash of the gun (col.1, lines 38-46),

Regarding claim 50, an impact generator for simulating a shooting impact of the gun (FIG 4, label 12),

Regarding claim 51, the impact generator is at least one of a piezoelectric element or a compressed gas discharger that can be vibrated by an electric signal (col.4, lines 38-52 and col.5, lines 1-13).

- Claims 46-47 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046 and further in view of Rayan 3,331,606.

Regarding claim 46, Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson in view of Bartsch does not explicitly teach, the magazine further comprising a speaker for generating a necessary sound through control by the microcomputer.

However, Rayan discloses a toy gun invention that teaches, a magazine further comprising a speaker for generating a necessary sound (see col.2, lines 15-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Rayan by incorporating a speaker in the simulated magazine, in order to produce different types of gun-shot sounds during firing so that the user would have a more realistic and entertaining experience during the shooting training.

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Regarding claim 47, Dawson in view of Bartsch and further in view of Rayan teaches the claimed limitations as discussed above.

Rayan further teaches, the sound includes at least more than one of a simulated shooting sound of the gun, a control command, or a report notifying abnormal operation of the simulation system (col.1, lines 71-72 and col.2, lines 1-3).

Therefore, as already discussed above with respect to claim 46, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Rayan by incorporating a speaker in the simulated magazine, in order to produce different types of gun-shot sounds during firing so that the user would have a more realistic and entertaining experience during the shooting training.

Regarding claim 53, Dawson in view of Bartsch and further in view of Rayan teaches the claimed limitations as discussed above.

Bartsch further implicitly teaches, circuit test means for checking abnormal operation of each means, and notifying abnormality by means of the speaker, if found (Para.0236 and Para.0257).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Rayan by incorporating audible indicating means into the system (as taught by Bartsch), in order to indicate different operational status of the simulation system to the user so that the user would be alerted to take the appropriate steps to

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maintain the operational condition of the system before losing important data (e.g. replacing the battery when the system generates Five Short Beeps and Red Flashes).

- Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046 and further in view of Nadel 2005/0016514.

Regarding claim 49, Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson in view of Bartsch does not explicitly teach, the flash generator includes a luminous element mounted on an external front surface of the housing.

However, Nadel discloses a projectile launching simulating device that teaches, a flash generator that includes a luminous element mounted on the simulation gun (FIG 4, label 12)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Nadel by incorporating a light flash generator coupled with a transparent flash light tube into the system, in order to produce a bright light that resembles the spark produced during an explosion of an actual gunshot, so that the trainee would have a more realistic experience when using the modified system; thereby making the modified simulator more attractive to the user.

As already discussed above with respect to claim 41 above, regarding claim 49 the criticality of the luminous element claimed, according to Applicant's disclosure, is to simulate the flash that is generated from the muzzle of a gun when shooting a real bullet (e.g. Page 41, lines 24-25 and Page 42, lines 1-3 of Applicant's specification).



The prior art also describes that the transparent flash light tube (along with the flash light generator) is utilized to simulate the explosion of a gun shot (e.g. Nadel, Para.0029 and Para.0030).

Thus, even if the position of the luminous element with respect to the gun appears to be different in the case of Nadel's system (when compared to the position of the luminous element in the case of the current invention), the functional limitations of these luminous elements appear to be identical in both inventions.

Furthermore, Applicant has not disclosed any importance as to why the position of the luminous element with respect to the gun (i.e. positioning the luminous element on the magazine instead of any other parts of the gun) is critical to the current invention (or solves any stated problem); and therefore, the system of the prior art appears to work well for the intended purpose.

Moreover, such rearrangement or repositioning of a part does not patentably distinguish one invention from another. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art **except** with regard to **the position of the starting switch** were held unpatentable because **shifting the position** of the starting switch **would not have modified the operation of the device.**); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

- Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046 and further in view of Cheshelski 5,842,300.

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Regarding claim 52, Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson in view of Bartsch does not explicitly teach, a wireless communication module for performing wireless communication.

However, a retrofittable laser and recoil system for a firearm that teaches, a wireless communication module for performing wireless communication (see col.23, lines 38-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson and further in view of Cheshelski by incorporating an intelligent magazine that contains a wireless communication module into the system, in order to minimize the error and complexity of the shooting circuitry due to multiple wire connections so that operational error due to the complexity of the wiring would be greatly reduced; thereby making the system more efficient.

Regarding claim 55, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001) comprising percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal (Para.0045), a housing of a magazine inserted and fixed into a magazine insertion section of the gun to have any one shape of a magazine, a cartridge or a bomb shell (FIG 2C, label 26); and a laser light transmitter attached to the gun for shooting a laser light toward a target (FIG 2B, label 31), wherein the laser light transmitter receives the percussion signal so as to

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shoot a laser light (Para.0265 and Para.268) and simulate that a target has been hit if the shot laser light is incident to a detecting element mounted on the target (Para.302 and Para.304).

With regard to the limitation “*the percussion signal output means being a cable lead wire electrically connected to the laser light transmitter for transmitting the percussion signal to the laser light transmitter*”, the reference also describes that Bartsch’s simulator system comprises a port that includes a magazine sensor for connecting the magazine to the simulated firearm (FIG 2C, labels 26 and 27), and a trigger sensor that detects movement or actuation of the trigger (Para.0045). The reference further describes that the trigger sensor is coupled to a processor, which is in turn coupled to the magazine sensor (see Para.0154, lines 5-12).

Therefore, one of ordinary skill in the art (at the time of the invention was made) would readily recognize the fact from the teaching of the reference that Bartsch’s simulation system incorporates *percussion signal output means* that communicates the output signal from trigger sensor to the processor, and a *percussion signal input means* that receives and communicates the signal from the processor to the magazine, in order to activate the magazine and generate a laser signal that simulates the firing of a shot. Thus, Bartsch implicitly teaches the above claimed features.

Moreover, it requires only a routine skill in the art (at the time of the invention was made) to connect one or more elements of the system using wire or wireless mediums.

Bartsch does not explicitly disclose, the laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal.

However, Cheshelski discloses a retrofittable laser and recoil system for a firearm that teaches, a laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal (col.35, lines 19-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Cheshelski by incorporating a signal conversion interface (such as an analog-to-digital/digital-to-analog interface) into the system, in order to provide the proper signal to the laser module so that the laser module would always fire a laser shot having the correct pulse width (i.e. a laser shot having the correct duration) when the trigger is activated; thereby making the system more efficient and responsive.

Regarding claim 56, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001) comprising percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal (Para.0045), a housing of a magazine inserted and fixed into a magazine insertion section of the gun to have any one shape of a magazine, a cartridge or a bomb shell (FIG 2C, label 26), and a laser light transmitter attached to the gun for shooting a laser light toward a target (FIG 2B, label 31), wherein the percussion signal output means generates a percussion signal to be transmitted to the laser light transmitter, the laser

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light transmitter receives the percussion signal so as to shoot a laser light (Para.0265 and Para.268), and simulate that a target has been hit if the shot laser light is incident to a detecting element mounted on the target (Para.0302 and Para.0304).

Bartsch does not explicitly disclose, the percussion signal output means generates a wireless percussion signal to be wirelessly transmitted to the laser light transmitter; and the laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal.

However, Cheshelski discloses a retrofittable laser and recoil system for a firearm that teaches, a percussion signal output means that generates a wireless percussion signal to be wirelessly transmitted to the laser light transmitter (see col.23, lines 38-53); and the laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal (col.35, lines 19-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Cheshelski by incorporating an intelligent magazine that contains a wireless communication module into the system, in order to minimize the error and complexity of the shooting circuitry due to multiple wire connections; and also by incorporating a signal conversion interface (such as an analog-to-digital/digital-to-analog interface) in order to provide the proper signal to the laser module so that the laser module would always fire a laser shot having the correct pulse width (i.e. a laser shot having the correct duration) when the trigger is activated; thereby making the system more efficient and responsive.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruk A. Gebremichael whose telephone number is (571) 270-3079. The examiner can normally be reached on Monday to Friday (7:30AM-5:00PM) ALT. Friday OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xuan Thai can be reached on (571) 272-7147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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